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OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

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MEMORANDUM

SUBJECT: Azinphos Methyl: **Third Version** of Revised Occupational Postapplication Exposure and Risk Calculations [Chemical Code 058001]

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1.0 INTRODUCTION

The purpose of this memo is to provide updated occupational postapplication exposure and risk estimates for azinphos methyl based on the following:

(i) New information regarding application rates (i.e., addition of typical rates, when available);

(ii) Inclusion of dislodgeable foliar residue (DFR) data from both the emulsifiable concentrate and wettable powder formulation studies when available, for all applicable crops;

(iii) Corrections to reported dislodgeable foliar residue (DFR) levels for two apple studies - to adjust results which were based on the surface area of only one side of the leaf;

(iv) Corrections to calculation error (i.e., adjustment from study application rate to actual application rate) for crops using the apple DFR data; and

(v) Correction to estimated transfer coefficient for thinning tree crops which resulted in a reduction from 8,000 cm^2/hr to 3,000 cm^2/hr.

The following documents were considered in the development of this revised risk assessment for postapplication workers.

- *Azinphos Methyl: **Second Version of Revised** Occupational Postapplication Exposure and Risk Calculations;* Issued: June 26, 2001

- *The **Revised** HED Chapter of the Reregistration Eligibility Decision Document (RED) for Azinphos methyl; PC CODE 058001, List A Case No. 0235. DP Barcode: D252505.* Issued: May 19, 1999

- *HED Science Policy For Exposure 3.1: Agricultural Transfer Coefficients,* Revised August 7, 2000, and Draft Revision.

The following section contains the revised postapplication exposure and risk estimates based on the updated information listed above.

2.0 REVISED OCCUPATIONAL POSTAPPLICATION RISK ASSESSMENT

In this revised risk assessment, the same dislodgeable foliar residue studies were used as in the June 26, 2001 revised risk assessment. Data for tomatoes were used only to assess the risks associated with tomatoes due to the unique method of sampling DFR for this crop. Data for potatoes were used to assess risks associated with low berry, nursery stock, root vegetables, cucurbit vegetables, Brassica vegetables, leafy vegetables, and fruiting vegetable crops. Data for apples were used to assess risks associated with deciduous tree fruit, evergreen tree fruit, and tree "nut" crops. Data for grapes were used to assess risks associated with vine and trellis crops. And data for cotton were used to assess the risks associated with low & medium field row crops. The delineations in the data were made based on the general method of application (e.g., tree crops are generally treated with airblast sprayers) and on similarity of crop profiles (e.g., canopies, crop height). The dislodgeable foliar residue data were also adjusted based on specific application rates of concern using a simple proportion as was done in the June 26, 2001 revised risk assessment. The toxicology aspects of the risk assessment also remain unchanged in that an endpoint from a 7-day dermal absorption study in rats

was used to assess exposures of 1 to 30 days (NOAEL = 0.56 mg/kg/day, based on the LOAEL of 5.6 mg/kg/day at which inhibition of RBC ChE occurred). The uncertainty factor also remains unchanged at 100 for all exposures.

The summarized results of the revised postapplication risk assessment are presented below, broken down by agronomic group, crop, and application rate (see Appendix A for specific calculations). The calculated risks and any types of exposures that are negligible or of special concern are also discussed within each group. An overall summary of the results of these revised calculations has not been developed because the updated scheme for presenting occupational postapplication risks is determined by the scope of each individual grouping.

2.1 Low Berry Transfer Coefficient Group:

Azinphos methyl can be used on cranberries (0.5 to 1 lb ai/A), lowbush blueberries (0.5 to 0.75 lb ai/A) and strawberries (0.5 lb ai/A).

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 2 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 1500 cm^2/hour):** hand pruning (late season, full foliage) and hand harvesting.

- **Low Exposure (TC = 400 cm^2/hour):** scouting (all growth stages), hand weeding (all growth stages), irrigation (early season, low foliage), hand pruning (early season, low foliage), and thinning (early season, low foliage).

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting, and 4 days for all other activities. Therefore, the results of the calculations for the 2^{nd} and 4^{th} day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 1. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study, which has been selected to represent this crop group.

Table 1: Postapplication Risks For Azinphos Methyl on Low Berry Transfer Coefficient Group				
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs	
			Low Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation				
Strawberries, Blueberries (lowbush), and Cranberries	0.5	2	23	7
		4	30	8
		14	110	29
		24		107
Blueberries (lowbush)	0.75	2	21	6
		4	27	7
		15	111	30
		25		108
Cranberries	1.0	2	15	4
		4	20	5
		17	108	29
		27		105
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation				
Strawberries, Blueberries (lowbush), and Cranberries	0.5	2	21	6
		4	25	7
		21	103	27
		37		104
Blueberries (lowbush)	0.75	2	19	5
		4	22	6
		23	108	29
		38		100
Cranberries	1.0	2	14	3.7
		4	17	4.3
		26	104	28
		42		105

2.2 Field/row crop (low/medium) Transfer Coefficient Group:

Azinphos methyl can be used on alfalfa, birdsfoot trefoil, and clover at a rate of 0.25 to 0.75 lb

ai/A; beans (succulent or snap) at a rate of 0.25 to 0.5 lb ai/A; and cotton at a rate of 0.125 to 0.5 lb ai/A.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 2500 cm^2/hour):** hand-harvesting (There is a low probability of hand-harvesting as most of these crops are primarily mechanically harvested, however, there is no azinphos methyl label restriction. Also, bundling and trampling of cotton would be a high exposure activity.)

- **Medium Exposure (TC = 1500 cm^2/hour):** irrigation scouting, and weeding of mature plants.

- **Low Exposure (TC = 100 cm^2/hour):** irrigation, scouting, and weeding of immature plants.

The existing label REIs for this crop group are 48 hours for irrigating and scouting, and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 2.

Table 2: Postapplication Risks For Azinphos methyl on Field Row Crop (low/medium) Transfer Coefficient Group

Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Cotton treated at a rate of 0.25 lb ai/A - EC Formulation					
Cotton	0.125	2	1,000	68	41
		4	1,400	93	56
		5		110	67
		8			107
Alfalfa, Beans, Birdsfoot Trefoil, and Clover	0.25	2	500	34	20
		4	700	47	28
		9		104	63
		12			102
Beans and Cotton	0.5	2	250	17	10
		4	350	23	14
		13		100	60
		17			114
Alfalfa, Birdsfoot Trefoil, and Clover	0.75	2	170	11	7
		4	230	16	9
		16		108	65
		19			105

2.3 Nursery Stock:

Azinphos methyl can be used on nursery stock at rates ranging from 0.375 to 2 lb ai/A.

Transfer coefficient data are not available for this use; therefore information from the cut flower crop group have been used as surrogate data to bracket exposures. For this use, exposures related to specific activities were determined to be within 2 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 7500 cm^2/hour):** harvesting and maintenance activities on trees/plants with fuller foliage.

- **Low Exposure (TC = 2500 cm^2/hour):** planting and maintenance activities on trees/plants with a small amount of foliage.

The existing label restricted entry intervals (REIs) for this use are 48 hours for irrigating and scouting, and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 3. Calculations are based on data from the DFR study of the wettable powder formulation (WP) on potatoes, which has been selected to represent this use.

Table 3: Postapplication Risks For Azinphos Methyl on Nursery Stock

Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs	
			Low Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation				
Nursery Stock	0.375	2	4.5	1.6
		4	5.3	1.9
		40	106	38
		52		103
	2.0	2	0.8	0.3
		4	1	0.4
		60	105	38
		72		102

2.4 Deciduous Tree Fruit Transfer Coefficient Group:

Azinphos methyl can be used on many deciduous types of tree fruit including apples, cherries (sweet and tart), crabapples, nectarines, peaches, pears, plums/prunes, and quince at application rates ranging from 0.75 to 2.0 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 3000 cm^2/hour):** hand thinning, hand harvesting, pruning, training, tying.

- **Low Exposure (TC = 1000 cm^2/hour):** irrigation, scouting, weeding.

- **Very Low Exposure (TC = 100 cm^2/hour):** propping.

The existing label restricted entry intervals (REIs) for this crop group are 14 days for hand thinning and harvesting and 48 hours for all other activities. Therefore, the results of the calculations for the 2^{nd} and 14^{th} day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 4. Calculations are based on data from a combination of four studies conducted on apple orchards in California, New York, Oregon, and Washington. For characterization purposes, MOEs based on data from each of the specific regions are also shown (for application rates of 1.0 and 1.5 lb ai/A, only) which emphasize the difference in dissipation rates between the regions studied [Note: in the New York study, where it rained almost every day of the study, the half-life is approximately 7.5 days, while the half-life from the California study is calculated to be 85 days; the half-lives from the Oregon and Washington studies were estimated to be 18 and 14 days, respectively].

Table 4: Postapplication Risks For Azinphos methyl On Deciduous Tree Fruit Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Apples treated at a rate of 1.0 lb ai/A in CA, NY, OR & WA - WP Formulation					
Cherries	0.75	2	46	5	2
		14	83	8	3
		18	101	10	3
		65		102	34
		87			100
Eastern Nectarines, Peaches, and Plums/Prunes	0.875	2	39	4	1
		14	71	7	2
		21	100	10	3
		68		101	34
		90			100
Apples, Crabapples, Pears, Quince, and Western Plums/Prunes	1.0	2	34	3	1
		14	62	6	2
		24	102	10	3
		71		103	34
		93			101
Eastern Nectarines and Peaches	1.125	2	31	3	1
		14	55	6	2
		26	100	10	3
		73		101	34
		96			104
Apples, Crabapples, Pears, Quince, Eastern Plums/Prunes, and Western Nectarines and Peaches	1.5	2	23	2	1
		14	41	4	1
		32	100	10	3
		79		101	34
		101			100
Western Nectarines, Peaches, and Plums/Prunes	2.0	2	17	2	1
		14	31	3	1
		38	101	10	3
		85		102	34

Table 4: Postapplication Risks For Azinphos methyl On Deciduous Tree Fruit Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
		107			100

Table 4: Postapplication Risks For Azinphos methyl On Deciduous Tree Fruit Transfer Coefficient Group (continued)					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Apples treated at a rate of 1.0 lb ai/A in CA					
Apples, Crabapples, Pears, Quince, and Western Plums/Prunes	1.0	2	31	3	1
		14	34	3	1
		144	100	10	3
		425		100	33
		558			100
Apples, Crabapples, Pears, Quince, Eastern Plums/Prunes, and Western Nectarines and Peaches	1.5	2	21	2	1
		14	23	2	1
		194	100	10	3
		474		100	33
		608			100
DFR Source: Apples treated at a rate of 1.0 lb ai/A in NY					
Apples, Crabapples, Pears, Quince, and Western Plums/Prunes	1.0	2	59	6	2
		14	188	19	6
		32		107	36
		43			103
Apples, Crabapples, Pears, Quince, Eastern Plums/Prunes, and Western Nectarines and Peaches	1.5	2	40	4	1
		14	126	13	4
		36		105	35
		47			101
DFR Source: Apples treated at a rate of 1.0 lb ai/A in OR & WA					
Apples, Crabapples, Pears, Quince, and Western Plums/Prunes	1.0	2	31	3	1
		14	53	5	2
		29	103	10	3
		80		100	33
		105			101
Apples, Crabapples, Pears, Quince, Eastern	1.5	2	21	2	1
		14	35	4	1
		38	103	10	3

Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
		89		100	33
		114			101

2.5 Evergreen Tree "Fruit" Transfer Coefficient Group:

Azinphos methyl can be used on many types of evergreen fruit trees including grapefruit, kumquats, lemons, limes, oranges (fresh and processed), tangelos and tangerines at an application rate of 1.25 to 2 lb ai/acre, and on southern pine seed orchards at a rate of 1.5 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **Medium Exposure (TC = 3000 cm^2/hour):** harvesting, training, pruning, tying, thinning, cone pruning, cone harvesting, staking, topping.

- **Low Exposure (TC = 1000 cm^2/hour):** Irrigation, scouting.

- **Very Low (TC = 100 cm^2/hour):** propping

The existing label restricted entry intervals (REIs) for this crop group are 30 days for hand thinning and harvesting citrus, 14 days for thinning and cone harvesting in southern pine seed orchards, and 48 hours for all other activities. Therefore, the results of the calculations for the 2^{nd} and 14^{th} or 30^{th} day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 5.

Table 5: Postapplication Risks For Azinphos methyl On Evergreen Tree "Fruit" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Very Low Exposure Activities	Low Exposure Activities	Medium Exposure Activities
DFR Source: Apples treated at a rate of 1.0 lb ai/A in CA, NY, OR & WA - WP Formulation					
Citrus	1.25	2	28	3	1
		30	109	11	4
		75		100	33
		98			103
Southern Pine Seed Orchard	1.5	2	23	2	1
		14	41	4	1
		32	100	10	3
		79		101	34
		101			100
Citrus	2.0	2	17	2	1
		30	68	7	2
		38	101	10	3
		85		102	34
		107			100

2.6 Tree Nut Transfer Coefficient Group:

Azinphos methyl can be used on many types of tree nuts including almonds, filberts, pecans, and walnuts at an application rate of 1.5 to 2.0 lb ai/acre, and pistachios at a rate of 2.5 lb ai/acre.

There are also exposures of special concern for activities associated with mechanical harvesting (i.e., shaking, windrowing, and sweeping) because of the extreme dust conditions created. At this time, data are not available to appropriately assign a transfer coefficient for this exposure category.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 2 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 2500 cm^2/hour):** harvesting/poling, pruning, thinning (mature).
- **Low Exposure (TC = 500 cm^2/hour):** irrigation, scouting, thinning (immature), weeding.

The existing label restricted entry intervals (REIs) for this crop group are 14 days for hand thinning and harvesting and 48 hours for all other activities. Therefore, the results of the calculations for the 2nd and 14th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 6.

Table 6: Postapplication Risks For Azinphos methyl on Tree Nut Transfer Coefficient Group				
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs	
			Low Exposure Activities	High Exposure Activities
DFR Source: Apples treated at a rate of 1.0 lb ai/A in CA, NY, OR & WA - WP Formulation				
Almonds, filberts, pecans and walnuts	1.5	2	5	1
		14	8	2
		65	102	20
		98		103
Almonds, filberts, pecans and walnuts	2.0	2	3	1
		14	6	1
		71	103	21
		104		104
Pistachios	2.5	2	3	1
		14	5	1
		75	100	20
		108		101

2.7 Vegetable "Root" Transfer Coefficient Group:

Azinphos methyl can be foliarly applied to onions at an application rate of 0.5 to 0.75 lb ai/acre and to potatoes at a rate of 0.375 to 0.75 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 2500 cm^2/hour):** hand harvesting.
- **Medium Exposure (TC = 1500 cm^2/hour):** irrigation and scouting of mature plants.
- **Low Exposure (TC = 300 cm^2/hour):** irrigation and scouting of immature plants, thinning, weeding.

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 7. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study, which has been selected to represent this

crop group.

Table 7: Postapplication Risks For Azinphos methyl On Vegetable "Root" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation					
Potatoes	0.375	2	41	8	5
		4	53	11	6
		9	102	20	12
		22		109	66
		26			111
Onions	0.5	2	31	6	4
		4	40	8	5
		12	113	23	14
		24		107	64
		28			108
Onions and Potatoes	0.75	2	21	4	3
		4	27	5	3
		15	111	22	13
		27		105	63
		31			106
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation					
Potatoes	0.375	2	38	8	5
		4	44	9	5
		14	102	20	12
		34		108	65
		40			106
Onions	0.5	2	28	6	3
		4	33	7	4
		18	107	21	13
		37		104	62
		43			102
Onions and Potatoes	0.75	2	19	4	2

Table 7: Postapplication Risks For Azinphos methyl On Vegetable "Root" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
		4	22	4	3
		23	108	23	13
		42		105	63
		48			104

2.8 Vegetable "cucurbit" Transfer Coefficient Group:

Azinphos methyl can be foliarly applied to cucumbers, melons (cantaloupes, casaba, honeydew, muskmelon, Persion melon, watermelon and wintermelon) and squash at an application rate of 0.375 to 0.5 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 2500 cm^2/hour):** hand harvesting, pulling, leaf thinning, thinning (mature), turning.
- **Medium Exposure (TC = 1500 cm^2/hour):** irrigation, scouting, weeding of mature plants.
- **Low Exposure (TC = 300 cm^2/hour):** irrigation, scouting, thinning and weeding of immature plants.

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 8. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study, which has been selected to represent this crop group.

Table 8: Postapplication Risks For Azinphos methyl On Vegetable "Cucurbit" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation					
Melons	0.375	2	25	8	5
		4	32	11	6
		13	103	34	21
		22		110	66
		26			111
Cucumbers, Melons, and Squash	0.5	2	19	6	4
		4	24	8	5
		15	100	33	20
		24		107	64
		28			108

Table 8: Postapplication Risks For Azinphos methyl On Vegetable "Cucurbit" Transfer Coefficient Group (continued)					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation					
Melons	0.375	2	23	8	5
		4	27	9	5
		20	101	34	20
		34		108	65
		40			106
Cucumbers, Melons, and Squash	0.5	2	17	6	3
		4	20	7	4
		24	105	35	21
		37		104	62
		43			102

2.9 Vegetable "fruiting" Transfer Coefficient Group:

Azinphos methyl can be foliarly applied to eggplant and peppers (bell and sweet) at an application rate of 0.375 to 0.5 lb ai/acre, and tomatoes (fresh and processed), at an application rate of 1.5 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 1000 cm^2/hour):** hand harvesting, pruning, staking, tying
- **Medium Exposure (TC = 700 cm^2/hour):** irrigation, scouting, of mature plants.
- **Low Exposure (TC = 500 cm^2/hour):** irrigation, scouting, thinning, weeding of immature plants.

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 9. For eggplant and peppers, calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study. For tomatoes, calculations are based on data from a tomato DFR study.

Table 9: Postapplication Risks For Azinphos methyl On Vegetable "Fruiting" Transfer Coefficient Group

Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation					
Eggplant and Peppers	0.375	2	25	18	12
		4	32	23	16
		13	103	73	51
		16		108	76
		19			112
Eggplant and Peppers	0.5	2	19	13	9
		4	24	17	12
		15	100	71	50
		18		105	74
		21			109
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation					

Table 9: Postapplication Risks For Azinphos methyl On Vegetable "Fruiting" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
Eggplant and Peppers	0.375	2	23	16	11
		4	27	19	13
		20	101	72	50
		24		100	70
		29			106
Eggplant and Peppers	0.5	2	17	12	8
		4	20	14	10
		24	105	75	53
		28		105	73
		32			103
DFR Source: Tomatoes treated at a rate of 1.5 lb ai/A - EC formulation					
Tomatoes	1.5	2	80	57	40
		4	90	71	50
		5	110	79	55
		8		109	76
		11			105

2.10 Vegetable "Brassica" Transfer Coefficient Group:

Azinphos methyl can be foliarly applied to broccoli, Brussels sprouts, cabbage and cauliflower, at an application rate of 0.125 to 0.75 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 5000 cm^2/hour):** hand harvesting, irrigation, pruning, topping, tying mature plants
- **Medium Exposure (TC = 4000 cm^2/hour):** scouting, of mature plants.
- **Low Exposure (TC = 2000 cm^2/hour):** irrigation, scouting, thinning, weeding of immature plants.

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 10. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study, which has been selected to represent this crop group.

Table 10: Postapplication Risks For Azinphos methyl On Vegetable "Brassica" Transfer Coefficient Group

Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation					
Broccoli, Brussels sprouts, Cabbage, and Cauliflower	0.125	2	19	9	7
		4	24	12	10
		15	100	50	40
		21		109	87
		23			113
Broccoli, Brussels sprouts, Cabbage, and Cauliflower	0.75	2	3	2	1
		4	4	2	2
		29	102	51	41
		35		111	89
		36			101

Table 10: Postapplication Risks For Azinphos methyl On Vegetable "Brassica" Transfer Coefficient Group (continued)					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation					
Broccoli, Brussels sprouts, Cabbage, and Cauliflower	0.125	2	17	8	7
		4	20	10	8
		24	105	53	42
		32		103	82
		35			105
Broccoli, Brussels sprouts, Cabbage, and Cauliflower	0.75	2	3	1	1
		4	3	2	1
		45	101	50	40
		54		107	85
		56			101

2.11 Vegetable "leafy" Transfer Coefficient Group:

Azinphos methyl can be foliarly applied to celery, and spinach, at an application rate of 0.375 to 0.5 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 3 categories (relative to the plants/commodities within the group):

- **High Exposure (TC = 2500 cm^2/hour):** hand harvesting, pruning, thinning mature plants
- **Medium Exposure (TC = 1500 cm^2/hour):** irrigation, scouting of mature plants.
- **Low Exposure (TC = 500 cm^2/hour):** irrigation, scouting, thinning, weeding of immature plants.

The existing label restricted entry intervals (REIs) for this crop group are 48 hours for irrigating and scouting and 4 days for all other activities. Therefore, the results of the calculations for the 2nd and 4th day after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 11. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the potato DFR study, which has been selected to represent this crop group.

Table 11: Postapplication Risks For Azinphos methyl On Vegetable "Leafy" Transfer Coefficient Group					
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs		
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - EC formulation					
Spinach	0.375	2	25	8	5
		4	32	11	6
		13	103	34	21
		22		110	66
		26			111
Celery, Parsley, and Spinach	0.5	2	19	6	4
		4	24	8	5
		15	100	33	20
		24		107	64
		28			108
DFR Source: Potatoes treated at a rate of 0.75 lb ai/A - WP formulation					
Spinach	0.375	2	23	8	5
		4	27	9	5
		20	101	34	20
		34		108	65
		40			106
Celery, Parsley, and Spinach	0.5	2	17	6	3
		4	20	7	4
		24	105	35	21
		37		104	62
		43			102

2.12 Vine/trellis Transfer Coefficient Group:

Azinphos methyl can be used on blackberries, blueberries (highbush), boysenberries, grapes, loganberries and raspberries at an application rate ranging from 0.25 to 1 lb ai/acre.

In this crop group, exposures related to specific activities where the transfer coefficient policy applies were determined to be within 4 categories (relative to the plants/commodities within the group):

- **Very High Exposure (TC = 10000 cm^2/hour):** grape girdling and cane turning.
- **High Exposure (TC = 5000 cm^2/hour):** hand harvesting, leaf pulling, thinning, pruning, training/tying.
- **Medium Exposure (TC = 1000 cm^2/hour):** scouting.
- **Low Exposure (TC = 500 cm^2/hour):** hedging, irrigation, scouting blueberries, hand weeding.

The existing label restricted entry intervals (REIs) for this crop group (except grapes) are 48 hours for irrigating and scouting and 4 days for all other activities. For grapes, the label REIs are 21 days for girdling, cane throwing and cutting, leaf pulling, bunch thinning, and hand harvesting, and 48 hours for all other activities. Therefore, the results of the calculations for the 2^{nd}, 4^{th}, and 21^{st} day (where applicable) after treatment, as well as those days for which the MOE reaches the target of 100, are presented in Table 12. Calculations are based on data from both formulations (i.e., emulsifiable concentrate [EC] and wettable powder [WP]) used in the grape DFR study, which has been selected to represent this crop group.

Table 12: Postapplication Risks For Azinphos methyl On Vine/trellis Transfer Coefficient Group						
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs			
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities	Very High Exposure Activities
DFR Source: Grapes treated at a rate of 0.25 lb ai/A - EC formulation						
Blackberries, Boysenberries, Loganberries, and Raspberries	0.25	2	17	8	2	N/A
		4	18	9	2	N/A
		59	101	51	10	N/A
		81		102	20	N/A
		132			101	N/A
Blackberries, Blueberries (highbush) Boysenberries, Loganberries, and Raspberries	0.5	2	8	4	1	N/A
		4	9	5	1	N/A
		81	102	51	10	N/A
		103		102	20	N/A
		154			101	N/A
Blueberries (highbush) and Grapes	0.75	2	6	3	1	0.3
		4	6	3	1	0.3
		21	10	5	1	0.5
		94	102	51	10	5
		116		102	20	10
		167			102	51
		189				102
Grapes	1.0	2	4	2	0.4	0.2
		21	8	4	1	0.4
		103	102	51	10	5
		125		102	20	10
		176			102	51
		198				102

N/A - not applicable. The “Very High Exposure Activities” category and 21-day REI are only applicable to grapes.

Table 12: Postapplication Risks For Azinphos methyl On Vine/trellis Transfer Coefficient Group (continued)						
Crop	Application Rate Assessed (lb ai/A)	Days After Treatment (DAT)	MOEs			
			Low Exposure Activities	Medium Exposure Activities	High Exposure Activities	Very High Exposure Activities
DFR Source: Grapes treated at a rate of 0.25 lb ai/A - WP formulation						
Blackberries, Boysenberries, Loganberries, and Raspberries	0.25	2	8	4	1	N/A
		4	9	4	1	N/A
		70	100	50	10	N/A
		121		102	20	N/A
		132			101	N/A
Blackberries, Blueberries (highbush) Boysenberries, Loganberries, and Raspberries	0.5	2	4	2	0.4	N/A
		4	4	2	0.4	N/A
		89	102	51	10	N/A
		107		100	20	N/A
		151			103	N/A
Blueberries (highbush) and Grapes	0.75	2	3	1	0.3	0.1
		4	3	1	0.3	0.1
		21	5	3	1	0.3
		100	102	51	10	5
		118		100	20	10
		161			100	50
		180				102
Grapes	1.0	2	2	1	0.2	0.1
		21	4	2	0.4	0.2
		107	100	50	10	5
		126		101	20	10
		169			101	51
		188				103

N/A - not applicable. The “Very High Exposure Activities” category and 21-day REI are only applicable to grapes.

cc: M. Rice, SRRD, 7508C, Chemical File

APPENDIX A

POSTAPPLICATION EXPOSURE & RISK CALCULATIONS FOR AZINPHOS METHYL BASED ON:

- **REVISED TRANSFER COEFFICIENT POLICY**
- **CORRECTIONS TO REPORTED DFR DATA**
- **ADDITIONAL APPLICATION RATE DATA**